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# **ELECTRONIC MESSAGE FORWARDING**

## **BACKGROUND OF THE INVENTION**

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### **Technical Field**

The invention relates to electronic messaging systems in a computer environment.

More particularly, the invention relates to the delivery of an electronic message

10 addressed to a telephone number.

### **Description of Prior Art**

The information age has brought various communication tools into every day life. In

15 addition to the traditional telephone and facsimile services, wireless communication

systems and electronic messaging systems are popular methods that offer

convenience and advantages that the traditional communication devices do not

provide. For example, wireless communication systems allow a mobile phone user

to be reached on his mobile phone in any places within the geographical area where

20 the wireless telephone services are offered. Electronic messaging systems allow a

user to access electronic messages received from the Internet via a computer

terminal where he has access to the Internet.

Much effort has been made to enable electronic message delivery and

25 communication across different communication systems, for example, between

wireless communication systems and electronic messaging systems via the Internet

or between the electronic messaging systems and facsimile services. A unified

messaging system attempts to provide a universal message sending and delivery

system that allows interoperability among the three typical message types, that is, voice mail, facsimile message, and electronic messaging. Using the unified messaging system, a user can retrieve all three types of messages via a single point of access. For example, a user can access all three types of messages via an electronic message system at a computer terminal or via a telephone system with a telephone number.

The Short Message Services (SMS) is a type of electronic messaging system that allows a mobile phone user to send from one mobile phone a small text message addressed to a telephone number for reception at another mobile phone. Further, a user may send an SMS message to a mobile phone at a telephone number through the Web site of the wireless service provider using a Web browser. Also, a user may send an SMS message to a mobile phone at a telephone number using an Instant Messaging software, like AOL Instant Messenger. The recipient may also be enable to reply from the mobile device using various mechanisms, like using special short codes that route messages to a Screen Name on the Instant Messaging service, like AOL Instant Messenger. An SMS message addressed to a telephone number is typically stored in a central short message center which forwards it to the mobile phone at the telephone number when it is available for communication with the central short message center.

The Instant Message Services (IMS) are a real-time communication process that allows users to exchange instant messages via a user interface over a communication network. Instant messages are typically exchanged when the communication channel between the source and destination devices are established for real-time communication.

However, interoperability between the SMS and the IMS has yet to be achieved. It would be advantageous to provide an electronic message delivery system that bridges both worlds of the SMS and the IMS.

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## **SUMMARY OF THE INVENTION**

The invention provides processes and systems for forwarding electronic messages addressed to telephone numbers in a computer environment.

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In one embodiment of the invention, a method of transmitting electronic messages in a computer environment includes: receiving an electronic message addressed to a telephone number; determining an instant message identifier associated with the telephone number; determining an instant message receiver is available to receive  
15 messages addressed to the instant message identifier; forwarding the electronic message as an instant message addressed to the instant message identifier in response to a determination that an instant message receiver is available to receive instant messages addressed to the instant message identifier; maintain the identity of the telephone number in the message and for any subsequent responses; and  
20 sending the electronic message to a mobile device at the telephone number in response to a determination that no instant message receiver is available to receive instant messages addressed to the instant message identifier.

In one example, the electronic message includes one of a text message, an SMS  
25 text message, an Multimedia Messaging Services (MMS) message, a video message and an audio message; and the instant message is received at an

electronic device configured to receive instant messages addressed to the instant message identifier. For example, the electronic device may be one of: a computer, a personal data assistant (PDA) and a telephone receiver. In one example, the instant message identifier associated with the telephone number is determined through  
5 searching in a database. In one example, whether or not to forward the electronic message as an email message addressed to an email address is determined according to a user preference stored in a database. In another example, whether or not to forward the electronic message as an instant message addressed to the instant message identifier is determined according to a user preference stored in a  
10 database. In one example, the determination of whether or not to forward is further based on source information of the electronic message, such as: a source address of the electronic message, a user name of a sender of the electronic message, a telephone number of a sender of the electronic message, or an instant message identifier of a sender of the electronic message. In one example, the instant  
15 message is generated from the electronic message based on one or more predetermined rules. For example, the one or more predetermined rules may select one or more portions of the electronic message as the instant message and may selectively delete one or more portions of the electronic message to generate the instant message.

20 In one embodiment of the invention, an apparatus for transmitting electronic messages in a computer environment includes: a module for receiving an electronic message addressed to a telephone number; a module for determining an instant message identifier associated with the telephone number; a module for determining  
25 whether an instant message receiver is available to receive messages addressed to the instant message identifier; a module for forwarding the electronic message as

an instant message addressed to the equivalent instant message identifier in response to a determination that an instant message receiver is available to receive instant messages addressed to the instant message identifier; and a module for sending the electronic message to a mobile device at the telephone number in response to a determination that no instant message receiver is available to receive instant messages addressed to the instant message identifier.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1A is a block schematic diagram showing a system that forwards an SMS message to the intended recipient's communication devices according to prior art;

FIG.1B is a block diagram showing a method of forwarding an SMS message to the intended recipient according to prior art;

FIG. 2 is a block schematic diagram showing a system for forwarding an SMS message to the destination devices according to one embodiment of the invention;

FIG. 3 is a block diagram showing a method of forwarding the SMS text message according to one embodiment of the invention;

FIG. 4 is a block diagram showing a method of selectively forwarding electronic messages based on user preferences according to one embodiment of the invention;

FIG. 5 is a block diagram showing a method of receiving the SMS text message with a privacy feature according to one embodiment of the invention;

FIG. 6 is a block diagram showing a method of selective forwarding SMS text messages according to one embodiment of the invention;

- 5 FIG. 7 is a block diagram showing a method of forwarding SMS text messages according to one embodiment of the invention; and

FIG. 8 is a block diagram showing a method of forwarding SMS messages according to one embodiment of the invention.

## DETAILED DESCRIPTION OF THE INVENTION

The invention is embodied in an electronic message forwarding system in a computer environment. The invention provides methods and apparatus for forwarding  
5 electronic messages addressed to telephone numbers as instant messages for the instant message identifiers associated with the corresponding telephone numbers.

In one embodiment of the invention, after an electronic message addressed to a telephone number is received for forwarding, an instant message identifier  
10 associated with the telephone number is determined. Then, it is determined whether an instant message receiver is available to receive messages addressed to the instant message identifier. The electronic message is forwarded as an instant message addressed to the instant message identifier in response to a determination that an instant message receiver is available to receive instant messages addressed  
15 to the instant message identifier. The identity of the telephone number in the message and for any subsequent responses is maintained. In response to a determination that no instant message receiver is available to receive instant messages addressed to the instant message identifier, the electronic message is forwarded to a mobile device at the telephone number.

20 In one embodiment, the electronic message is not forwarded to a mobile device at the telephone number when the electronic message is forwarded as an instant message addressed to the instant message identifier, *e.g.* according to a user preference stored in the database associated with the telephone number.



Alternatively, the electronic message may be forwarded to a mobile device at the telephone number regardless of whether there is an instant message receiver available to receive instant messages addressed to the instant message identifier, *e.g.* according to a user preference stored in the database associated with the  
5 telephone number.

In one embodiment, the electronic message is forwarded as the instant message regardless whether there is an instant message receiver available to receive instant messages addressed to the instant message identifier, *e.g.* according to a user  
10 preference stored in the database associated with the instance message identifier or the telephone number.

FIG. 1A is a block schematic diagram showing a system that forwards an SMS message to the intended recipient's communication devices according to prior art.  
15 Referring now to FIG. 1A, an SMS message originator instructs a mobile phone 102 to send the SMS text message to the recipient's mobile phone 106 by using the destination SMS message address associated with the recipient's mobile phone number 106. The SMS message is received by an SMS server 104. The SMS server 104 further transmits the SMS message to the recipient's mobile phone 106  
20 according to the telephone number designated as the destination address of the SMS message. The recipient receives the SMS message on the mobile phone 106.

FIG. 1B is a block diagram showing a method of forwarding an SMS message to the intended recipient according to prior art. Referring now to FIG. 1B, an SMS  
25 message originator specifies the telephone number to which the SMS message is addressed 112. The SMS message originating mobile phone sends the SMS

message to a SMS server 114. The SMS server stores the SMS message 116 and further forwards the SMS message according to the destination mobile telephone number of the SMS message 118 when the mobile phone is in communication with the SMS server.

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FIG. 2 is a block schematic diagram showing a system for forwarding an SMS message to the destination device according to one embodiment of the invention. Referring now to FIG. 2, one embodiment of the invention provides a system for forwarding an SMS message to destination devices depending on the real-time presence of the intended recipient. The system according to one embodiment of the invention includes an SMS text message originator 202, an SMS server 204 that includes a routing logic 206, a dynamic message control server 208, an IM server 210, and one or more destination devices 212, 214, 216. One embodiment includes additional media storage 218.

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The SMS text message originator ("originator") 202 generates an SMS text message addressed to a telephone number of the recipient mobile devices 212, 214 or an email address of a desktop computer 216. The SMS text message originator 202 can be any SMS generating devices, *e.g.* an SMS-enabled mobile device, a web-browser or an IM client, that allow to generate and send the SMS text message addressed to the telephone number or the email address.

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In one embodiment, after the SMS message sender instructs the originator 202 to send an SMS message to a destination device 212, 214 or 216, the SMS server 204 receives the SMS text message. The SMS server 204 then forwards it to the dynamic message control server 208.

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The dynamic message control server 208 makes decisions with regard to various actions that can be taken with the SMS text message, such as whether to forward the SMS message as an instant message, or whether or not to forward the SMS message in its original content. The details of these actions are described below in FIG. 3.

If the dynamic message control server 208 decides that the SMS message should be forwarded as an instant message, the dynamic message control server 208 forwards the SMS message to the IM server 210 to be transmitted further as an instant message. The IM server 210 then forwards the SMS message as an instant message to one or more instant message receivers 214, 216 for the instant message identifier. In one embodiment, the destination device is an IM-enabled mobile device 214 displaying the IM interface. Alternatively, the destination device 216 is a computer terminal displaying an IM interface.

If the dynamic message control server 208 decides that the SMS message should be forwarded as an SMS message through the SMS server 204, the routing logic 206 then forwards the SMS message to the mobile phone number with the addressed telephone number. Alternatively, the dynamic message control server 208 may be implemented inside or with the routing logic 206 in the SMS server 204, or inside the IM server 210, or partially in the SMS server 204 and partially in the IM server 210.

In one embodiment, the destination device is an SMS-enabled mobile device 214. It is understood that different devices may be used to receive different types of electronic messages. For example, the mobile device 214 may be used to receive

the SMS messages. The computer terminal 216 may be used to receive the IM messages. The mobile device 214 may also be used to receive the IM messages if IMS-enabled.

5 In this way, the SMS text message is routed to the destination devices 214, 216 according to the routing path determined by the IM Server 210. The dynamic message control server 208 maintains a database containing the information to map the telephone numbers for the SMS message to corresponding instant message identifiers and user preferences. The user preferences and the mapping between  
10 the telephone numbers and the IM identifiers are used by the dynamic message control server 208 to route the SMS messages according to the embodiments of the invention.

In another embodiment, media storage 218 are provided to store various messages.  
15 For example, an SMS text message can be forwarded not only to an IM server 210, but also the media storage 218. A message containing a picture can be forward to an online journal or an online album. In addition, user preferences could be applied so that only messages originating from the registered phone number would be able to forwarded to the medial storage 218. Alternatively, user preferences could also  
20 be applied to allow messages from any originating phone number to be forwarded to the media storage 218.

In addition, the media storage 218 provides storage when messages could not be forwarded to the phone number for the destination mobile device. For instance, when  
25 the destination mobile device is not capable of receiving the message or parts of the message, the whole message and/or its parts could be forwarded for storage.

It is understood that any type of electronic messages addressed to a telephone, such as a text message, an SMS short text message, an Multimedia Messaging Services (MMS) message, a video message, a graphic message and an audio message, can be routed according to embodiments of the invention.

FIG. 3 is a block diagram showing a method of forwarding the SMS text message according to one embodiment of the invention. Referring now to FIG. 3, the invention provides a method of forwarding an SMS text message addressed to a telephone number at either a mobile device in the SMS text message format or one or more IM message receivers displaying an IM message interface, depending upon whether there is an IM message receiver available to receive IM messages.

In one embodiment of the invention, the SMS text message recipient subscribes to both the SMS service and the IM service. At the time of the registration of the services, the recipient receives an SMS address, or has one already assigned, which is typically the telephone number of the mobile device number for the SMS service. For example, an SMS text message recipient Jane Smith is assigned an SMS text message address 650.555.1212, which is her mobile telephone number. A user of a mobile phone may send an SMS text message to the mobile phone of Jane Smith by specifying the phone number 650.555.1212 as the destination address. An email address, such as 6505551212@serviceprovider.com, may also be used for sending a text message from an email client program to the SMS center of the service provider for deliver as the SMS text message to the mobile device at the address of 650.555.1212.

Meanwhile, she registers a screen name representing her identity in an IM service system, *e.g.* JaneSmith1. When setting up her user profile, she associates her screen name of her IM service with the mobile device number of her SMS services. Thus, for example, the user profile database of the dynamic message control server  
5 associates the screen name "JaneSmith1" with the mobile device number 650.555.1212.

The user profile database may also associate her screen name with other profile information regarding the recipient, such as preferences of Jane Smith in routing  
10 SMS messages as instant messages. For example, she may specify user preference information that directs the determination process in forwarding SMS text messages as IM messages and user preference information for applying filters to forwarded messages. For example, the filters may include a SPAM filter, a rate-limiting filter, do-not-message list filters or even do-not-call list filters.

15 In one embodiment, the SMS text message sender instructs the SMS originator to send an SMS text message to a mobile device address that includes the mobile device number 302. The SMS server receives the SMS text message and forwards it to the dynamic message control server 304.

20 Subsequently, the dynamic message control server determines whether the recipient at the mobile device number enables the SMS forwarding feature 304. The SMS text message is forwarded to the mobile device number directly 308 if it is determined that the recipient at the mobile device number did not enable the SMS  
25 forwarding feature 306.

If it is determined that the recipient at the mobile device number enabled the SMS forwarding feature 306, the SMS server proceeds to determine whether the recipient desires to forward the SMS message as an instant message 310 to the IM service address by checking against the user preference profile.

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If it is determined that the recipient does not desire to forward the SMS message to as an instant message 310, the SMS text message is forwarded to the intended mobile device number at the mobile phone number 308.

- 10 If the recipient desires to forward the SMS message as an instant message 310, it is then determined whether an IM receiver is available to receive IM messages 312.

In one embodiment of the invention, it is dynamically determined whether the recipient's IM service receiver is available to receive an IM message 312. If it is  
15 determined that the recipient's IM service receiver is not available to receive an IM message 312, the SMS text message is forwarded to the intended mobile device address as the SMS text message 308. However, if it is determined that the recipient's IM service receiver is available to receive an IM message 312, the SMS text message is forwarded as an instant message to the recipient's IM display  
20 interface for delivery 314. Various features can be implemented in forwarding the SMS message as the IM message. These features are discussed below in connection with their respective figures.

In one embodiment, the recipient's IM display interface is on a computer terminal. In  
25 another embodiment, the recipient's IM display interface is on a mobile device such as a PDA or a mobile telephone. Once the instant messaging interface is initiated,

the information for establishing the real-time or near real-time communication with the IM message receiving device is sent to an IM server so that IM messages can be delivered in real time or near real time.

- 5 In one embodiment of the invention, the IM user can also respond to the sender of the SMS message, which is forwarded to the SMS user as an SMS message, using an IM forwarding to the SMS service 314. For example, the server which forwards the SMS message to the IM receiver is aware of the source of the SMS message. When the IM receiver responds to the sender of the SMS message by an IM
- 10 message, the server automatically converts the IM message into an SMS message for delivery to the sender. When this SMS message is delivered to device used by the SMS text message sender, it would appear to originate from the phone number originally addressed.
- 15 In one embodiment, the invention provides a method of logging the date and time for the delivery of the message to email addresses, the instant message identifiers or the storage medium. The method also provides a method of forwarding the electronic messages to a storage medium that temporarily or permanently stores the electronic messages. The messages can be forwarded according to the time and
- 20 date preferences of the instant message receiver.

In this way, the invention bridges the gap between the two worlds of the SMS services and the IM services. The invention enables an IM service subscriber to bring the SMS service to the IM service community. The SMS text messages can

25 be received as instant messages routed to IM service clients on which she is signed onto as determined by the IM server in a dynamic real-time fashion.



Meanwhile, an SMS text message sender with SMS-enabled mobile phones would not have to learn anything new, as unfamiliarity with a new technology may become an obstacle for some users. By virtue of sending an SMS text message to a mobile device number that happens to be registered for an SMS text messaging to Instant Message forwarding feature, an SMS text message user can communicate with an IM user who is present on the Internet via the IM user interface.

Moreover, someone who uses both Instant Messaging and SMS can maintain contact with those who only know him by his mobile phone number; they would not have to know his IM identity. They could simply send a SMS text message to the mobile phone number.

The invention facilitates domain sharing with wireless carriers and provides a method of automatically absorbing a large amount of wireless telephone service customers when they sign on IM services. For example, if a wireless telephone service customer's telephone number is now registered with IM services with an IMS screen name, the wireless telephone number would automatically become eligible for IMS message forwarding services. Thus, the IMS subscriber is able to go online through an IM client, receive an IM message and receive an SMS text message sent to the wireless telephone number.

FIG. 4 is a block diagram showing a method of selectively forwarding electronic messages based on user preferences according to one embodiment of the invention. A variety of actions can be taken when forwarding the electronic messages based on user preference according to embodiments of the invention. For example, the user

can choose whether or not the SMS messages shall be forwarded and where the SMS message should to be forwarded to. The user preference may be set when registering an SMS service or an IM service or changed later.

5 Referring now to FIG. 4, after an SMS text message addressed to a telephone number is received 402, the dynamic message control server determines whether to forward the SMS text message regardless of the availability of the IM receiver based on user preference 404. If it is determined that the SMS text message shall be forwarded as an SMS text message regardless of the availability of the IM receiver  
10 based on user preference 404, the SMS text message is thus forwarded to the mobile phone of the addressed telephone number as an SMS text message without sending it as an instant message 406. In effect, the IMS service is blocked with regard to the SMS text message sender.

15 If it is determined that the SMS text message shall not be forwarded as an SMS text message regardless of the availability of the IM receiver based on user preference 404, the dynamic message control server then detects whether a receiver of the instant message identifier associated with the telephone number is available to receive instant messages 408.

20

If it is determined that the receiver of the instant message identifier associated with the telephone number is not available to receive instant messages 408, the SMS text message is forwarded to the addressed telephone number as an SMS text message without sending it as an instant message 406. However, if it is the receiver of the  
25 instant message identifier associated with the telephone number is available to

receive instant messages 408, the SMS text messages is forwarded to the receiver of the instant message identifier based on the user preference 410.

In this way, an IMS user controls whether or not she wants to receive an SMS text  
5 message as an instant message.

An instant message is thus generated and forwarded to the instant message receiver of the instant message identifier, such as a screen name 412. In one embodiment, the recipient of the SMS text message may choose to use one specific user interface  
10 to receive messages and manage her conversations. A variety of the electronic devices can be configured to display the IMS user interface. Such electronic devices include but not limited to a computer terminal, a personal data assistant (PDA), a mobile or wired telephone receiver or other mobile devices. After the user uses the selected device for receiving instant messages, *e.g.* by starting the software  
15 program for the user interface and connecting to an instant message server using the screen name, the selected device becomes available to receive instant messages.

For example, Jane Smith can sign onto her computer to enjoy the rich messaging  
20 experience that an IM service client provides. The IM client can group messages from the same person within one window. When an SMS text message can be forwarded to an IM service client, the SMS text message recipient can sign onto an IM interface to receive the SMS text message using the IM service client, providing a better experience than an SMS text message interface while including some of the  
25 same functionality, *e.g.* grouping messages from the same person into a conversation.

FIG. 5 is flow diagram showing a method of receiving the SMS text message with a privacy feature according to one embodiment of the invention. User A receives from and sends SMS text messages to User B using mobile devices. Subsequently, 5 User A wants to stop receiving messages from User B. The invention provides a method of discontinuing receiving SMS text messages from an undesired source.

Referring now to FIG. 5, User A may use a pre-determined telephone number that is available to all SMS forwarding subscribers who want to use the privacy feature. 10 User A may send a text message containing User B's telephone number to the pre-determined telephone number to discontinue receiving SMS text messages from User B's telephone number.

In one embodiment, an SMS server receives an SMS text message originated from 15 User A addressed to a pre-determined telephone number 502. It is determined whether the SMS text message originated from User A contains a telephone number 504, *e.g.* User B's telephone number. If it is determined that the SMS text message originated from User A contains User B's telephone number, any future SMS text message from User B's telephone number to User A's telephone number, will not be 20 forwarded to the User A's telephone number or the instant message identifier associated with User A's telephone number 506. Thus, the future SMS text message from User B to User A will be blocked. In effect, User B's SMS text message intended to reach User A falls on a "deaf ear."

25 Alternatively, the unwanted messages may be forward to a storage media for permanent storage.

In another embodiment, User A uses a computer to create a list of telephone numbers to block. In this case, all unwanted messages from the telephone numbers on the block lists are blocked.

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In one embodiment, the "deaf ear" telephone number generates an SMS text message as an automatic response stating that the recipient of the original SMS text message, *e.g.* User A, no longer wants to receive future messages from the sender, *e.g.* User B.

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However, if it is determined that the SMS text message originated from User A does not contain User B's telephone number 504, the SMS text message is forwarded according to user preference 508.

15 In this way, the invention provides a method of blocking any future messages originating from a specified telephone number to the telephone number of a user, or the instant message identifier associated with that user's telephone number. Similarly, User A may choose to block future instant messages originated from the screen name associated with the telephone number of User B by sending the  
20 telephone number of User B in an SMS message to a predetermined telephone number.

FIG. 6 is a flow diagram showing a method of selective forwarding SMS text messages according to one embodiment of the invention. The invention provides a  
25 method of selectively forwarding SMS text messages according to its source information. The present invention brings the IMS functionality to the SMS Service.

Referring now to FIG.6, in one embodiment, once the SMS server receives an SMS text message 602, the source Information about the originating and the destination telephone numbers of the SMS text message is packaged 604. Without sending the SMS text message itself, the packet including the source information of the SMS text message is sent to the dynamic message control server 606. Once received by the dynamic message control server, the content of the packet is checked against the user preference 608.

In one embodiment, the user preference can be set by the destination telephone number user or the parents who exercise parental control of a teenager user. For example, a destination telephone number user can indicate in the user preference that an SMS text message originated from a specific telephone number should be blocked. In this case, the dynamic message control server checks if the packet for the destination telephone number includes a specified telephone number. If it does, the message is blocked or filtered according to the user preference.

It is then determined whether the SMS text message should be forwarded to not to the destination telephone number 610. If it is determined that the SMS text message can continue onto its destination, then the SMS text message is delivered to the SMS-enabled mobile phone or an IMS receiver 612. Alternatively, if it is determined that the SMS text message should not continue onto its destination, no attempts of delivery of the SMS text message is made 614.

In one embodiment, a user can choose to block all other SMS text messages forwarding but allow only certain types of SMS text messages to reach the mobile

phone or the IMS receiver according to the source information. For example, a user may register the preference to receive SMS text message from only two sources, e.g. the telephone numbers from the user's parents and from the user's boss. Alternatively, a user may register the preference to receive all SMS text messages except one or more specified source telephone numbers.

FIG. 7 is a block diagram showing a method of forwarding SMS text messages according to one embodiment of the invention. The invention provides a method of forwarding SMS text messages according to predetermined rules.

Referring now to FIG. 7, in one embodiment, at least one user preference is provided to allow a user to register and make rules of forwarding the SMS text messages 702. One or more specific undesired words may be entered into a database that are available to be checked against later. For example, a user may make rules of deleting specific words of profanity from all incoming SMS text messages before the messages are forwarded as instant messages or delivered to the telephones as SMS text messages; or messages may be blocked from being forwarded at all. In another example, a user may choose to delete specific words or sentences or paragraphs suggesting illegal drugs from all incoming SMS text message. In another embodiment, a user may choose to apply different filters that are provided by the system. The various filters make the rules of forwarding the SMS text messages.

After the SMS server receives an SMS text message 704, the contents of an SMS text message are checked against the target words and a determination is made whether certain selection rules are applicable to the incoming SMS text message

706. In one embodiment, a search is performed to determine whether the SMS text message include target words stored in a database. Once a determination that certain selection rules are applicable to the incoming SMS text message 706, a new message is generated according to the predetermined selection rules 708. For example, the undesired target words originally in the SMS text message are deleted; and an instant message without the target words is generated.

If no selection rules are applicable to the incoming SMS text message 706, the SMS text message is forwarded in its original content according to user preferences.

In this way, the invention provides a method of parental control to allow parents to supervise a minor's use of SMS message systems.

FIG. 8 is a block diagram showing a method of forwarding SMS messages according to one embodiment of the invention. The invention provides a method of generating an automatic response in response to an SMS text message.

Referring now to FIG. 8, User A has been using short message service (SMS) to send and receive SMS text messages from and to his mobile phone. Subsequently, User A wants to automatically generate a response to other users who send him a message. User A sends a text message containing the automatic response to a predetermined phone number, *e.g.* the message "Gone Fishin'" sent to a predetermined telephone number "\*99" or "4699".

In one embodiment, after an SMS server receives an SMS text message addressed to a predetermined telephone number 802, the dynamic message control server



determines the source telephone number of the SMS text message 804. Based on the source telephone number information, the preferences of the user of the source telephone number is modified 806 so that an automatic response is generated for any future SMS text messages addressed to the source telephone number. For example, when the SMS server receives the SMS text message "Gone Fishin'" from User A, the telephone number associated with User A is determined and the preference of User A is modified so that the server will generate an automatic response to future SMS text messages addressed to the telephone number.

For example, when an incoming SMS message is determined to be addressed to the telephone number that requires an automatic response, an SMS text message containing the automatic response is generated 808. The context of the SMS message from the telephone number that requests the automatic response service, e.g. User A's telephone number, may be used to generate the automatic response.

For example, after User A sends a text message of "Gone fishin'" to a predetermined telephone number "\*99" or "4699, any text message addressed to the telephone number of User A will be automatically responded with the automatic generated response text message "Gone fishin," which is the text equivalent of a voicemail greeting/auto-reply for User A.

Thus, this action initiates the capability to generate the automatic response. Optionally, a particular status may be associated with this automatic response, which could be displayed on devices that support the display of such status.

Although the above embodiments and examples are described in a particular combination and flow order, different combinations and different orders of processing

steps can be used. Some user preferences can be shared or derived from other products and preferences .

Alternatively, some additional user preferences can be set to condition the message  
5 delivery to the instant message receiver based on time and dates. For instance, in  
Figure 7, there could be a pre-determined rule stating that within a certain time  
period , e.g. 12:00 am – 6:00 am, and/or within a date range, e.g. 12/25/03-1/1/04,  
messages would not be forwarded either to the instant message receiver and/or the  
mobile device. Additionally, the user may be able to specify an auto-response, as  
10 shown in Figure 8, during this period.

In one embodiment, message delivery could also be dependent on community-wide  
SPAM rules that go beyond user preferences. For instance, if the originating phone  
number violates any community wide rules, has been excommunicated from the  
15 community, or has sent too many messages within a period of time (i.e., rate-  
limiting), the phone number may be put on a list of phone numbers. If a phone  
number is on this list, the Dynamic Message Control Server would not deliver  
messages originating from this phone number to any destination device. Similarly,  
destination phone numbers may opt to be on a “Do Not Message” list, akin to the “Do  
20 Not Call” List. In effect, if the destination phone number is on the list, messages  
from certain originating phone numbers would not be delivered to the destination  
phone number.

In one embodiment, a log of messages could be created by the Dynamic Message  
25 Control Server regardless of how a message is forwarded. For instance, if the  
message is forwarded to the mobile device number directly like in 308, then this

action is recorded in the log. This log would be accessible by an administrator tool which would be part of the dynamic message control server.

It can be appreciated that the present invention can be implemented on the SMS-C server or can be implemented on separate servers, such as an IM server. A dynamic message control server can be included in the SMS-C server. A routing logic can be implemented independent of the SMS server with the dynamic message control server.

It is important to note that embodiments of the methods can be further used with other types of electronic messages. Other types of electronic messages include any type of electronic messages capable of being delivered and received by SMS/MMS-enabled and/or IMS-enabled electronic devices, such as a text message, an MMS message, a video message and an audio message etc. An SMS-enabled and IMS-enabled electronic devices include a computer, a personal data assistant (PDA), a mobile or wired telephone receiver or other electronic devices.

It is also important to note that embodiments of the invention include an apparatus for transmitting an electronic message according to the methods described above and a program storage medium readable by a computer, tangibly embodying a program of instructions executable by the computer to perform the method for updating address information as described above.

Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of

the present invention. Accordingly, the invention should only be limited by the claims included below.